

Appln No. 10/727,490
Amdt date April 17, 2006
Reply to Office action of November 16, 2005

REMARKS/ARGUMENTS

Claims 1-34 were previously pending, of which claims 16-31 are withdrawn from consideration. Claims 2, 5, 6, 8, 11 and 32-34 are cancelled. New claims 35-42 are added. Therefore, claims 1, 3, 4, 7, 9, 10, 12-31 and 35-42 are currently pending, of which claims 16-31 are withdrawn from consideration.

The drawings have been objected to under 37 CFR 1.83(a) for not showing every feature of claims 8, 11 and 34. Applicants have cancelled these claims. However, the features of claims 8, 11 and 34, upon which this rejection is based are now recited in new claims 38-41. Accordingly, Applicants have amended FIGS. 3A and 2C to show the features recited in new claims 38-41. In particular, FIG. 3A has been amended to show one embodiment of structure by which the angle of the corkscrew is adjustable. The specification has been amended to refer to FIG. 3A where the specification describes features that are shown in FIG. 3A. FIG. 2C has been amended to show a "stop" as recited in claim 41. Applicants have also assigned the reference number 109 to the "stop" and amended the specification accordingly to include the reference number 109 where the "stop" is described.

No new matter has been added as a result of the amendments to the drawings and the specification. Therefore, Applicants respectfully request that the objection to the drawings be withdrawn.

Claims 8 and 11 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants have cancelled claims 8 and 11.

Claims 3-4, 8, 9 and 11 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Regarding claims 3 and 4, claim 3 has been amended to provide antecedent basis for "outer barrel." Therefore, claim 3 as amended and claim 4, which depends from claim, 3 overcome this rejection.

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Regarding claim 9, the amendment made herein to claim 1 provides antecedent basis for "inlet plate." Therefore, the rejection of claim 9 is now moot.

Regarding claims 8 and 11, these claims have been cancelled.

Claim 1-9, 11-15, and 32-34 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lichtenthaeler (US 1,496,345). Claims 2, 5, 6, 8, 11 and 32-34 have been cancelled. Claim 1 has been amended to recite an inlet plate having an aperture defined by a space between two concentric arcs, wherein the edges of the aperture in the inlet plate are substantially tapered. In contrast, Lichtenthaeler does not disclose or even suggest edges of the aperture in an inlet plate being substantially tapered.

Lichtenthaeler is directed to an apparatus for mixing liquids. Lichtenthaeler discloses a sparger 12 having helical vanes 22. A fluid entering the mixing chamber 10 from the sparger 12 mixes with the fluid in the mixing chamber 10 by moving along the helical vanes 22. Lichtenthaeler also includes a spider 23, which is a single piece of copper bent to form a support for the end of the sparger 12. An end of the helical vanes 22 is riveted at location 24 to the spider 23.

Lichtenthaeler does not disclose or even suggest edges of an aperture in an inlet plate being substantially tapered as recited in claim 1. Therefore, Applicants believe that claim 1 and claims 3, 4, 7, 9, and 13-15, which depend from claim 1 are patentable over Lichtenthaeler.

Claims 1-9, 11-12, 14-15, and 32-34 are rejected under 35 U.S.C. § 102(b) as being anticipated by King (US 6,027,241). Claims 2, 5, 6, 8, 11 and 32-34 have been cancelled. Claim 1 has been amended to recite an inlet plate having an aperture defined by a space between two concentric arcs, wherein the edges of the aperture in the inlet plate are substantially tapered. In contrast, King does not disclose or even suggest an inlet plate having an aperture defined by a space between two concentric arcs, wherein the edges of the aperture in an inlet plate are substantially tapered.

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King is directed to a mixing apparatus. King discloses a cone-shaped module 11 having a number of openings 14, and a plurality of vanes 42 downstream of the module 11 for mixing fluids. The openings 14 are not defined by a space between two concentric arcs and do not have edges that are substantially tapered.

Therefore, because King does not disclose or even suggest an inlet plate having an aperture defined by a space between two concentric arcs, wherein the edges of the aperture in an inlet plate are substantially tapered, Applicants believe that claims 1, 3, 4, 7, 9, 12, 14 and 15 are patentable over King.

Claims 1-3, 7-9, 11-15, and 32-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Warren (US 1,626,487). Claims 11, 32 and 33 have been cancelled. Claim 1 has been amended to recite an inlet plate having an aperture defined by a space between two concentric arcs, wherein the edges of the aperture in the inlet plate are substantially tapered. In contrast, Warren does not disclose or even suggest edges of the aperture in an inlet plate being substantially tapered.

Warren is directed to an emulsifier. Warren discloses a mixing chamber 2 having a spindle 32 carrying spiral blades 33. sparger 12 having helical vanes 22. A fluid entering the mixing chamber 10 from the sparger 12 mixes with the fluid in the mixing chamber 10 by moving along the helical vanes 22. Lichtenthaeler also includes a spider 23, which is a single piece of copper bent to form a support for the end of the sparger 12. An end of the helical vanes 22 is riveted at location 24 to the spider 23.

Warren does not disclose or even suggest edges of an aperture in an inlet plate being substantially tapered as recited in claim 1. Therefore, Applicants believe that claim 1 and claims 3, 7, 9 and 12-15, which depend from claim 1 are patentable over Warren.

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lichtenthaeler, Warren, or King. Claim 10 depends from claim 1. As discussed in the foregoing, any one of

Lichtenthaeler, Warren and King does not disclose or even suggest at least edges of the aperture in an inlet plate being substantially tapered as recited in claim 1. Therefore, Applicants believe that claim 10 is patentable over any one of Lichtenthaeler, Warren and King.

Applicants have added claims 35-42, of which claims 35, 38 and 42 are independent. Claim 35 recites a first fluid chamber between the inner barrel and the outer barrel, a second fluid chamber between the outer barrel and the outer casing, and an inlet plate coupled to the inner barrel, the outer barrel and the outer casing, the inlet plate having a first aperture and a second aperture, the first aperture adapted to provide fluid communication between an inlet and the first fluid chamber, and the second aperture adapted to provide fluid communication between the inlet and the second fluid chamber. In contrast, any one of Lichtenthaeler, Warren and King does not disclose or even suggest the above-noted elements of claim 35. Therefore, Applicants believe that claims 35-37 are patentable over any one or a combination of Lichtenthaeler, Warren and King.

Claims 38 recites a corkscrew deflector disposed between the inner barrel and the outer barrel, the corkscrew deflector coupled to an outer surface of the inner barrel and an inner surface of the outer barrel, wherein the corkscrew deflector is adjustable between a first position having a first corkscrew angle and a second position having a second corkscrew angle different from the first corkscrew angle. In contrast, any one of Lichtenthaeler, Warren and King does not disclose or even suggest the corkscrew deflector being adjustable between a first position having a first corkscrew angle and a second position having a second corkscrew angle different from the first corkscrew angle. Therefore, Applicants believe that claims 38-41 are patentable over any one or a combination of Lichtenthaeler, Warren and King.

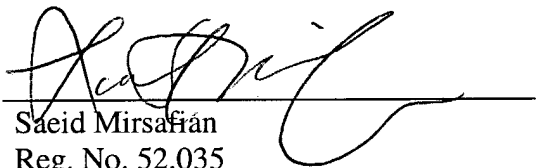
Claim 42 recites a tool comprising a corkscrew deflector disposed between the inner barrel and the outer barrel, the corkscrew deflector coupled to an outer surface of the inner barrel and an inner surface of the outer barrel to define a helical fluid chamber, wherein the corkscrew deflector extends at least 90 degrees around the inner barrel, and wherein the corkscrew deflector

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directs fluid entering the outer barrel from the inlet through the helical fluid chamber to provide a vortex flow at the outlet. In contrast, any one of Lichtenthaeler, Warren and King does not disclose or even suggest the above-noted elements of claim 42. Therefore, Applicants believe that claim 42 is patentable over any one or a combination of Lichtenthaeler, Warren and King.

In view of the foregoing, Applicants respectfully request a timely indication of allowance. Should there be any further issues that can be addressed by telephone, Applicants invite the Examiner to contact the undersigned at the number indicated below.

Respectfully submitted,
CHRISTIE, PARKER & HALE, LLP

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Amendments to the Drawings:

The attached sheets of drawings include changes to FIG. 2C and FIG. 3A. These sheets, replace the original sheets including FIG. 2C and FIG. 3A.

Attachment: Replacement Sheets
 Annotated Sheets Showing Changes



FIG. 2C

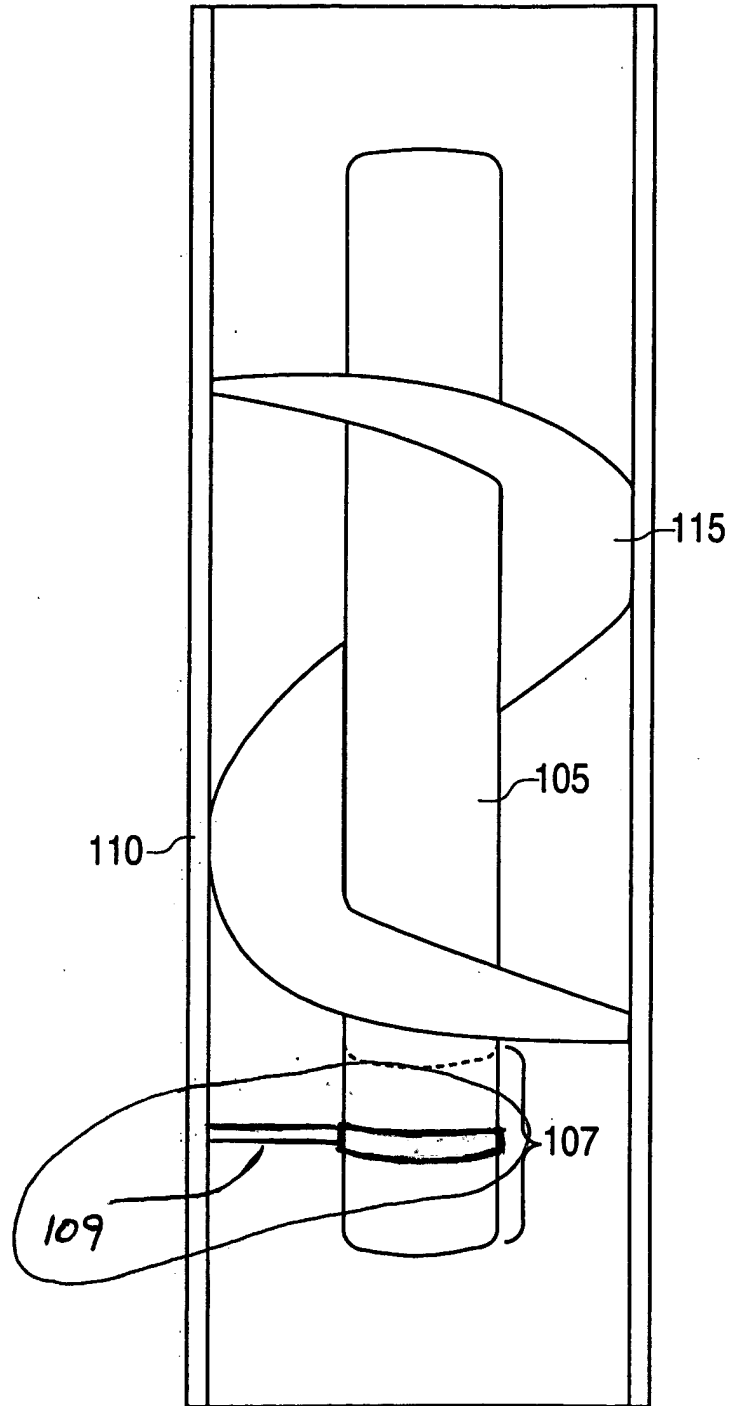


FIG. 3A

